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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,596	10/17/2003	Pedro Torres	P&TS-36202	2098
116 7590 04/30/2008 PEARNE & GORDON LLP 1801 EAST 9TH STREET SUITE 1200 CLEVELAND, OH 44114-3108				
EXAMINER				
TRINH, THANH TRUC				
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1795				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/688,596

**Applicant(s)**

TORRES ET AL.

**Examiner**

THANH-TRUC TRINH

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 and 13-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the internal side" in line 9. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1-4, 9-11 and 13 -15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuto et al. (US Patent 6471816) in view of W.R. Walker (US Patent 1971924)

Regarding claim 1, as seen in Figures 1-6, Shuto et al discloses a sealed electric power generating product including a base plate (combination of substrate 10, adhesive 27 and protective film 25); a power generating film laminated (21) over the base plate; at least one contact portion (22) for contacting at least one pole (20a or 20c) of the power generating film; an electric conductor (lead wire 30) is solder attached to the back side of the contact portion (or metal foil 22 - See Figure 6, col. 6 lines 39-43); a sealing material (solder material) positioned within a blind hole (28 as seen in Figure 6) between the internal side of the base plate (10) and the contact portion (22). The blind hole is a hole perforated through the base plate after the lamination of the power generating film over the base plate. The blind hole has lateral sides being even. (See Figures 1-6, col. 3 lines 44-67, col. 4 lines 1-68, col. 5 lines 1-42). Shuto et al. also teach the metal foil 22 can be cut slightly into (See col. 5 lines 8-10), thereby giving the metal foil 22 (or the contact portion) an even surface.

The difference between Shuto et al. and the instant claim is that Shuto et al. does not specifically teach the electric conductor (lead wire 30) going through the blind hole, or through the sealing material and connected to the uneven bottom of the hole by using a weld.

W.R. Walker teaches different ways to weld or solder attach an electric conductor (or leads 5, 23 or 33) to a contact portion (the base of cup electrodes 2, 22 or 32)

through a hole as seen in Figures 1-6, and through a sealing material (or fusible metal 34) as seen in Figure 6.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the product of Shuto et al. by having the electric conductor (wire 30) going through the blind hole (28) and sealing material and connected to the uneven bottom of the hole by a weld as taught by W.R. Walker because W. R. Walker teaches that it would be different ways to have the electric lead (or wire) to make contact with the electrode (or contact portion). (See Figures 1-6 and page 2 line 76 through page 3 line 85). In addition both Shuto et al. and W.R. Walker are concerned with attaching the wire (or lead) to the contact portion (or electrode) through an hole, therefore one would have reasonable expectation of success from the combination.

Regarding claim 2, Shuto et al. describe the contact portion (or metal foil 22) is provided on the upper side of the generating film 21 opposite the base plate, and the blind hole 28 traverses the base plate and the generating film. (See Figures 5b and 6)

Regarding claims 3 and 4, Shuto et al describe that the metal foils 22 are positioned above output terminals 20a and 20c, then attached under pressure and heat to electrically connect. (See col. 4 lines 12-21). Conductive paste output terminals are typically made of binding materials, such as polyimide or phenol based binders, and powder metals such as nickel, silver or aluminum (See col. 7 lines 24-26). Additionally, conductive paste output terminals run substantially the full length and on the right and left sides of the solar cells 11a, 11b, 11c. In other words, metallic bands of combination

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of output terminals and metal foils run substantially full length and on opposite sides of the power generating film. (See Fig. 1a, 2a, 3a, 4a, 5a). At least a lead wire 30 is solder attached to the metal foil 22 through the hole 28 on one side of the power generating film; therefore in combination with W.R. Walker, it would be obvious that at least two lead wires (or electric conductors) go through two blind holes for connecting each metallic band. (See Fig. 5a-6 and col. 5 lines 40-43).

Regarding claim 9, Shuto et al discloses a power generating film 21 comprising a plurality of solar battery elements 11a, 11b, 11c. (See Fig. 2a and col. 3 lines 50-52, col. 3 lines 65-66 and col. 4 lines 1-4). In each element, there is at least one silicon layer. These silicon layers are on top of other flexible films such as transparent conductive layer, and on the substrate 10 that is made of polyimide.

Regarding claim 10, Shuto et al teaches that transparent protective films 24 and 25 encapsulate over the solar module 1 (or photovoltaic cell) on the front and back, respectively. (See col. 4 lines 38-42). The encapsulation layers are made of organic materials such as ethylene terephthalate (PET) or fluoroplastics. (See col. 4 lines 42-43).

Regarding claim 11, as seen in Figure 6, Shuto et al. teaches the sealing material (or solder material) is also for sealing the blind hole (28).

Regarding claim 13, Shuto et al. describes the electric conductor (30) is electrically connected with the contact portion via a weld (or solder). (See Figure 6 and col. 5 lines 40-43). W. R. Walker teaches the electric conductor (or lead 5) is electrically

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connected with the contact portion (or the base of electrode cup 2) via a weld or solder (See Figures 1-6 and page 2 line 76 through page 3 line 85)

Regarding claim 14, W. R. Walker teaches the bottom of the blind hole (or the base of electrode cup 2 or 12) can have protrusion 4 in a form of conical shape as seen in Figure 3, or tapped socket 13 as seen in Figure 4 to facilitate the welding of lead 5. (See page 2 lines 76-103). It also would have been obvious to one skilled in the art that the uneven surface of the bottom of the blind hole can have any form (i.e. conical shape) to facilitate the welding of lead (or wire) to the contact portion.

Regarding claim 15, Shuto et al. describe the contact portions (or metal foils 22) are cover with solder platings. (See col. 4 lines 19-23). The solder platings are inherently made of metal. Therefore, the contact portions are locally reinforced with a supplementary layer of metal.

2. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuto et al in view W. R. Walker and further in view of Nagao et al (US Patent No.6670541).

Regarding claims 5-8, Shuto et al in view of W. R. Walker teaches solar cell modules as described in claim 1.

Shuto et al. in view of W. R. Walker does not specifically teach the base plate is rigid, nor do they teach that the plate comprises one insulator between two layers of metal. Shuto et al. in view of W. R. Walker also does not teach that the base plate is specifically suitable for covering external building walls.

Nagao et al teach the plate (or back cover) is rigid, possibly made of metal or formed by sandwiching a film between metal layers such as aluminum foils. (See col. 5 lines 53-55). In addition, the plate is suitable for covering external building walls. (See col. 1 lines 7-8, and Fig. 11, 13A-D, 14).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the module of Shuto et al. in view of W. R. Walker by applying a rigid base plate comprising an insulator layer between two layers of metal as taught by Nagao et al, because it would provide a superior and effective photovoltaic back over in protecting, reinforcing and preventing hazards from environment. (See Nagao et al, col. 5 lines 49-61).

3. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shuto et al. in view of W. R. Walker and further in view of Mimura et al. (US Patent 6182403).

Regarding claim 16, Shuto et al. in view of W. R. Walker teaches a sealed electric power generating product as described in claim 1 with a plurality of blind holes.

Shuto et al. in view of W. R. Walker does not specifically teach using a plurality of junction boxes, wherein each one of the junction boxes is mounted over a corresponding one of the blind holes.

Mimura et al. et al. teach using a plurality of junction boxes 405, wherein each one of the junction boxes is mounted over a corresponding hole 406 with output lead 407. (See Figure 4 and col. 9 lines 45-54)



It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the product of Shuto et al. in view of W. R. Walker by using a plurality of junction boxes with each mounted over a corresponding blind hole as taught by Mimura et al., because it would provide cover for the blind hole and housing terminal for drawing power out of the product. (See col. 9 lines 45-54 of Mimura et al.)

4. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuto et al. (US Patent 6471816) in view of W. R. Walker (US Patent 1971924)

Regarding claim 17, as seen in Figures 1-6, Shuto et al. describe a sealed electric power generating product including a base plate (combination of substrate 10, adhesive 27 and protective film 25); a power generating film (21) laminated over the base plate; at least one contact portion (22) for contacting at least one pole (20a or 20c) of the power generating film; an electric conductor (lead wire 30), wherein the electric conductor (30) is electrically connected with the contact portion by solder material and a blind hole (28) has substantially even sides; a sealing material (solder material as seen in Figure 6) applied at an outer side of the base plate for sealing the blind hole.

The difference between Shuto et al. and the instant claim is that Shuto et al. does not specifically teach the electric conductor (lead wire 30) going through the blind hole, or through the sealing material and connected to the bottom of conical shape of the hole by using a weld

W.R. Walker teaches different ways to weld or solder attach an electric conductor (or leads 5, 23 or 33) to a contact portion (the base of cup electrodes 2, 22 or 32) through a hole as seen in Figures 1-6, and through a sealing material (or fusible metal 34) as seen in Figure 6. W. R. Walker also teaches the bottom of the blind hole (or the base of electrode cup 2 or 12) can have protrusion 4 in a form of conical shape as seen in Figure 3, or tapped socket 13 to receiving the wire (or lead 5) as seen in Figure 4 as different ways to facilitate the welding of lead 5. (See page 2 lines 76-103).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the product of Shuto et al. by having the electric conductor (wire 30) going through the blind hole (28) and sealing material and connected to the uneven bottom of the hole by a weld as taught by W.R. Walker because W. R. Walker teaches that it would be different ways to have the electric lead (or wire) to make contact with the electrode (or contact portion). (See Figures 1-6 and page 2 line 76 through page 3 line 85). It would also have been obvious to one skilled in the art that the uneven surface of the bottom of the blind hole can have any form (i.e. conical shape) to facilitate the welding of lead (or wire) to the contact portion, since W. R. Walker teaches different shapes can be used to facilitate the welding. Both Shuto et al. and W.R. Walker are concerned with attaching the wire (or lead) to the contact portion (or electrode) through an hole, therefore one would have reasonable expectation of success from the combination.

Regarding claims 18, Shuto et al disclose a power generating film 21 comprising a plurality of solar battery elements 11a, 11b, 11c. (See Fig. 2a and col. 3 lines 50-52, col. 3 lines 65-66 and col. 4 lines 1-4). In each element, there is at least one silicon layer. These silicon layers are on top of other flexible films such as transparent conductive layer, and on the substrate 10 that is made of polyimide.

Regarding claim 19, Shuto et al. disclose a transparent encapsulation layer 24 over the power generating film. The encapsulation layer is made of an organic material. (See Figure 4b, 5b, 6 and col. 4 lines 38-55).

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shuto et al. in view of W.R. Walker and further in view of Mimura et al. (US Patent 6182403).

Regarding claim 20, Shuto et al. in view of W. R. Walker teaches a sealed electric power generating product as described in claim 17, wherein the product comprises a plurality of blind holes (See Figures 1-6).

Shuto et al. in view of W.R. Walker does not specifically teach using a plurality of junction boxes, wherein each junction box is mounted over a corresponding blind hole.

Mimura et al. et al. teach using a plurality of junction boxes 405, wherein each one of the junction boxes is mounted over a corresponding hole 406 with output lead 407. (See Figure 4 and col. 9 lines 45-54)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the product of Shuto et al. in view of W.R. Walker by using a plurality of junctions boxes with each mounted over a corresponding blind hole

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as taught by Mimura et al., because it would provide cover for the blind hole and housing terminal for drawing power out of the product. (See col. 9 lines 45-54 of Mimura et al.)

6. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuto et al. (US Patent 6471816) in view of W. R. Walker (US Patent 1971924)

As seen in Figures 1-6, Shuto et al. describe a sealed electric power generating product including a base plate (combination of substrate 10, adhesive 27 and protective film 25); a power generating film (21) laminated over the base plate; at least one contact portion (22) for contacting at least one pole (20a or 20c) of the power generating film; an electric conductor (lead wire 30), wherein the electric conductor (30) is electrically connected with the contact portion by solder material and a blind hole (28) has substantially even sides and the contact portion (22) at the bottom of the blind hole (28); a sealing material (solder material as seen in Figure 6) applied at an outer side of the base plate for sealing the blind hole.

The difference between Shuto et al. and the instant claim is that Shuto et al. does not specifically teach the electric conductor (lead wire 30) going through the blind hole or through the sealing material and connected to the bottom of the hole by using a weld; and the sealing material preventing the electric conductor from contacting the lateral sides of the blind hole.

W.R. Walker teaches different ways to weld or solder attach an electric conductor (or leads 5, 23 or 33) to a contact portion (the base of cup electrodes 2, 22 or 32)

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through a hole as seen in Figures 1-6, and through a sealing material (or fusible metal 34) as seen in Figure 6. W. R. Walker also teaches the bottom of the blind hole (or the base of electrode cup 2 or 12) can have protrusion 4 in a form of conical shape as seen in Figure 3, or tapped socket 13 to receiving the wire (or lead 5) as seen in Figure 4 as to facilitate the welding of lead 5. (See page 2 lines 76-103).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the product of Shuto et al. by having the electric conductor (wire 30) going through the blind hole (28) and sealing material and connected to the uneven bottom of the hole by a weld as taught by W.R. Walker because W. R. Walker teaches that it would be different ways to have the electric lead (or wire) to make contact with the electrode (or contact portion). (See Figures 1-6 and page 2 line 76 through page 3 line 85). It would also have been obvious to one skilled in the art that the uneven surface of the bottom of the blind hole facilitates the cohesion of the welding of lead (or wire) to the contact portion. In such combination, the electric conductor would have been obviously prevented from contacting the lateral sides of the blind hole. Both Shuto et al. and W.R. Walker are concerned with attaching the wire (or lead) to the contact portion (or electrode) through a blind hole, therefore one would have reasonable expectation of success from the combination.

### ***Response to Arguments***

Applicant's arguments with respect to claim 2/5/2008 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh-Truc Trinh whose telephone number is 571-272-6594. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TT  
09/28/2007

/PATRICK RYAN/

Supervisory Patent Examiner, Art Unit 1795